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The Caucasus range dominates the whole of Transcaucasia. It is over 400 miles long, while its outskirts stretch for 150 miles and 100 miles respectively to Baku and Novorossiisk. It runs from west-north-west to east-south-east between 45° and 40° north latitude, and falls naturally into three well-defined sections: a western section from Anapa to the upper valley of the Kodor, not far from Sukhum; the main central section from the upper Kodor valley to Mount Kazbek; and an eastern section, including the Highlands of Daghestan, and extending from Mount Kazbek to Baku.

The *western* section commences with hills, which rise gradually to a height of 7,000 ft. at the source of the Kodor. The mountains fall abruptly to the Black Sea.

The *main central* section is entirely mountainous, the general elevation being within the limit of perpetual snow, which on the north side is 9,500 ft. and on the south 10,800 ft. The five highest peaks are Mount Elbruz (18,470 ft.), Koshtan Tau (16,539 ft.), Dikh Tau (16,925 ft.), Janga (16,660 ft.), and Kazbek (16,546 ft.); and there are many others over 14,000 ft. The chief passes are the Mamison Pass (9,253 ft.), across which runs the Ossetian Military Road, connecting Kutais with Vladikavkaz; and the Dariel Pass (4,122 ft.), over which the Georgian Military Road runs from Vladikavkaz to Tiflis. There are no large lakes, and few tarns.

The *eastern* section broadens as it approaches the Caspian, including on the northern side of the main range a triangular area known as the Daghestan Highlands. The country here is difficult of access, and only one military road leads up from the River Terek in Ciscaucasia, the eleven passes being mere bridle-paths. The general elevation of the main range rarely exceeds the line of perpetual snow, but there are three peaks of over 14,000 ft. From Shemakha the elevation declines rapidly; at Baku there are only low hills. The Gudam Pass, 7,977 ft., which forms the western limit of this section, is the best in Transcaucasia. Over the Vantliashet Pass runs the road from Petrovsk to Tiflis.

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IV. ECONOMIC CONDITIONS

(A) MEANS OF COMMUNICATION

(1) Internal

(*a*) *Roads*

491 In an area of 181,173 square miles there were in the Caucasus in 1912 only 1,950 miles of macadamized road and 5,300 miles of unmetalled road. Progress was being made in some parts, but in others the roads were falling into disrepair. After the outbreak of war important work was carried out on some of the main roads, and in 1915 and 1916 several new military roads were constructed over the Turkish frontier.

The main artery of the country, running from north to south, is the Mozdok–Vladikavkaz–Tiflis–Erivan road, 382 miles in length. The Vladikavkaz–Tiflis section, which crosses the main range of the Caucasus by the Dariel Pass, is known as the Georgian Military Road, and is a fine piece of engineering. There is a motor-car service, run by a French company, along this section.

Two unmetalled roads lead northward from Mozdok—the one runs north-west to Alexandrovskoe, whence a metalled continuation goes to meet at about 25 miles north-east of Stavropol a metalled road from Stavropol to Divnoe near the Astrakhan frontier; the other runs north-east into Astrakhan, dividing at Senkina, some 15 miles from Mozdok, into two branches, both of which eventually cross the border.

A road runs south-westward from Tiflis to Kars, a distance of 167 miles, and is metalled for part of the way.

An important road, the Ossetian Military Road, runs north-west from Vladikavkaz to Ardonskaya and thence

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south-west to Kutais, a distance of 191 miles. It crosses the Caucasian main range by the Mamison Pass. 491 •

The most important road from west to east is the Kutais–Tiflis–Elisavetopol–Shemakha–Baku road, with a total length of 542 miles. The Kutais–Tiflis section is known as the Imeretian Military Road.

There are also coast roads along the shores of the Black and Caspian Seas:

On the Black Sea coast a metalled road begins at Anapa, passes through Novorossiisk, 30 miles to the south-east, and runs along the coast to Sukhum and Ochemchiri, where it turns inland, dividing at Novo-Senaki into two branches which meet again at Kutais. The coast section was being improved in 1913.

Other roads terminating on the Black Sea coast are the Armavir–Maikop–Tuapse road, 166 miles long, the Akhaltsikh–Batum road, 110 miles long, and the Akhalkalaki–Artvin–Batum road, 200 miles long. The first of these is now to some extent superseded by the recently constructed railway following the same course. Batum lacks road connexions with the north.

Along the Caspian coast there is a road, for the most part unmetalled, from Astrakhan to Baku, a distance of 600 miles; and there is a road, metalled except where it crosses the Vantliashet Pass, from Petrovsk, on the Caspian, to Tiflis.

Road communications between the Caucasus and Russia are very few, the only ones of importance being the above-mentioned road along the Caspian littoral and one from Stavropol to Rostov-on-Don.

(*b*) *Rivers and Canals*

Few of the numerous rivers of the Caucasus are navigable, and those are used to a limited extent only for transport. The floating of timber to the seaboard for shipment is the principal traffic in almost every case. 133 505

In Ciscaucasia the Kuban and the Terek have navigable stretches. The *Kuban*, which flows into the

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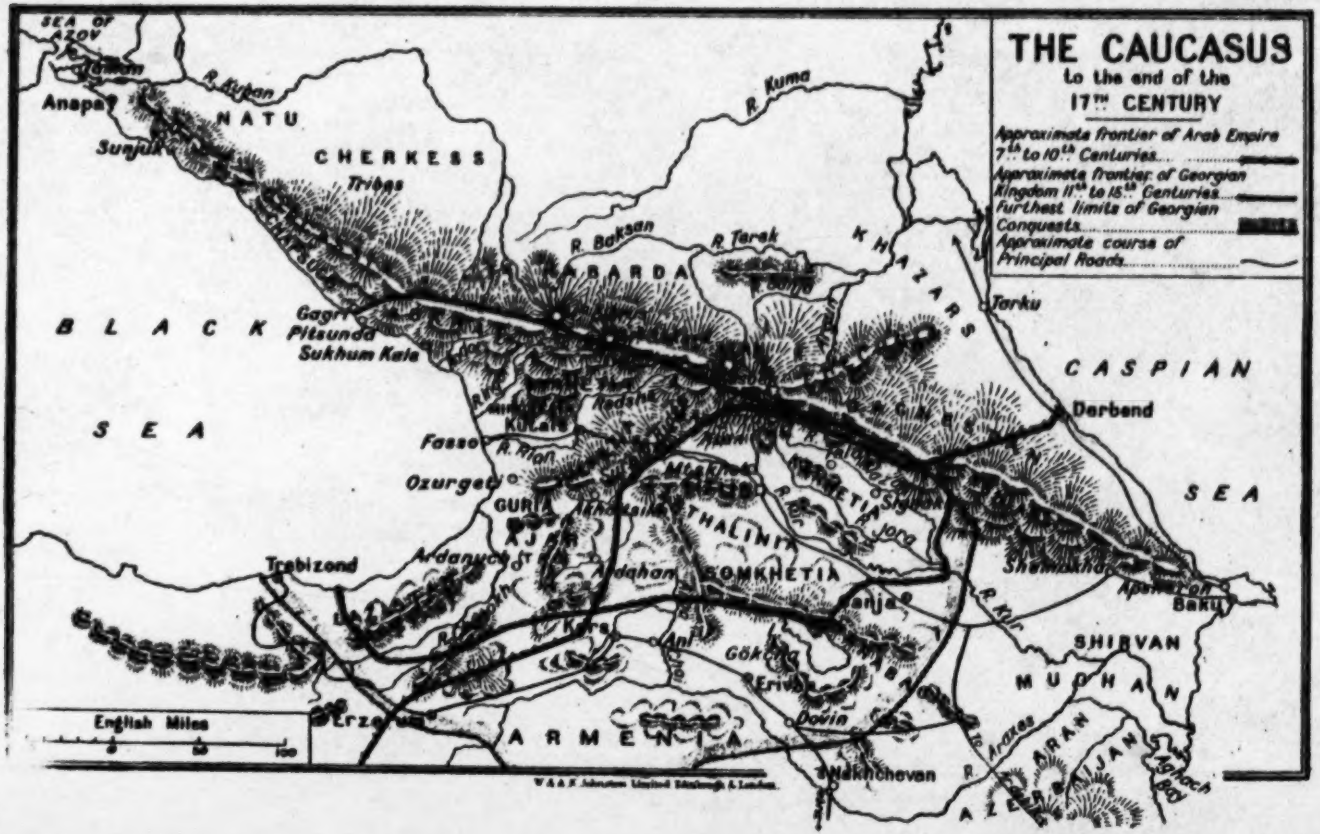

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491 [491] The Russians have been careful however to develop communications over the Caucasus of extreme military and political importance. A railway from Baku follows the historical passage-way by Derbend and connects with the Vladikavkaz-Rostov line and the main Russian system by Petrovsk, Grozni and Beslan. There is no other railway communication with Transcaucasia, but Russian strategic control has been ensured by four military roads. The main artery, the Georgian Military Road, 382 miles in length, leads from Mozdok via Vladikavkaz and the Daryal to Dushet, Tiflis and Erivan. On the west the Ossetian Military Road runs from Ardon, 20 miles north-west of Vladikavkaz, across the main range of the Caucasus by the Mamison Pass, and reaches Kutais by Oni. Along the formerly impassable Black Sea coast a metalled road now runs from Anapa via Novo-Rossiisk and Sochi to Sukhum and Kutais. On the east a metalled road from Petrovsk traverses Daghestan by Temir Khan Shura and the Vantliashet Pass and leads by Telav to Tiflis. The existence of these four roads is of supreme political importance. The Caucasus is no longer an insuperable military barrier, and the construction of the Black Sea and Ossetian roads has opened two new routes of invasion into Georgia. Other important roads are the lateral road west to east, Kutais—Tiflis—Elisavetpol—Shemakha—Baku; also Tiflis—Kars, Akhaltsikh—Batum, and Akhalkalaki—Ardahan—Ardanuch—Artvin—Batum. Batum has no direct main road connection with Poti or Sukhum.

[492] The Rion is navigable for 83 miles from its mouth at Poti; the Kur for 390 miles.

137 *Timber Resources.*—The Caucasian area is remarkable for the extent and wealth of its forests, the survival of which has been due as much to the sparsity, and consequently inconsiderable needs of the population, as to inaccessibility and impracticability of transport. In the south-eastern regions much deforestation has taken place, and many of the mountain-sides of Russian Armenia, formerly thickly wooded, are now bare of trees. Similarly, since the Russian conquest, the beech-forests of Chechnia have been greatly thinned. Dense forests of beech, oak and conifers still cover the northern slopes of the Caucasus along the banks of the Kuban and the Terek and their tributaries, while there are extensive forests round Lake Gökcha, east of Elisavetpol, and in Talish.

But it is along the Black Sea coast, on the south-western slopes of the Caucasus and in Georgia, where the many streams and shelter from the winds of the steppe are favourable to

central Akhuryan valley around Leninakan; then, marginal areas of Western Georgia (Colchis). In the North Caucasian area the population of the rural districts is generally between 20 and 35 persons per km^2, with the greater density along the rivers, such as the Sulak and the T'erek in the east, and the central and lower Kuban in the west. In the northwest, a large strip of this density extends towards the Yeya, and in this entire area the influx of Russian and Ukranian settlers, always strong, is still increasing. These settlers have also occupied a considerable part of the Stavropol' plateau, all around Stavropol'; and farther to the northwest of the town, an area on the central course of the T'erek, around the town of Mozdok. North, northwest, and west of the T'erek the population is exclusively Russian in the area of greatest density; only south and southeast of the T'erek does it become mixed - Russian, Turkic, and Caucasian. All the remaining Caucasian territory has populations of less than 20/km^2, depending upon the natural conditions: arid zones, deserts, or the alpine parts of the mountains have practically no inhabitants.

Communication Lines

High mountain areas are naturally inaccessible. Thus, the communication lines connecting Caucasian lands with each other and the outside world are few and difficult. Down to the time of the Russian conquest

.491 nothing like roads or highways existed (even today the means of communication are few and, so far as we know, far from modern). Prior to the Russian conquest there existed caravan routes and paths across the mountain ridges. One of the oldest roads was that leading from coast to coast along the Trans-Caucasian valley, on which such glorious old cities as K'ut'aisi, Mts'kheta--the old capital of Georgia --Kirovabad (Gandja), and Shemakha are situated. This road bifurcates near Tiflis, and has a branch leading through Kakhet'ia via T'elavi, and through the Alazani valley along the slopes of the Caucasus, via Zakatali and Nukha. From there it turns southward toward the Kura, where in the vicinity of the present-day railroad it joins the straight east-west road connecting Kirovabad with Shemakha. At Yevlakh it crosses the Kura along with the railroad, and continues southward to Barda'a, the ancient Part'av, capital of the realm of Alvank or Albania. From there it continues to Shusha and Karabakh, then further into Nakhichevan and Persian Azerbaidjan. The eastern branch of the old Trans-Caucasian valley road continues from Shemakha to Baku, while another old line leads from Shemakha southward to Lenkoran and all along the Caspian littoral--being another old communication line in northern Persia, in this case with the Caspian provinces of Gīlān and Māzandarān; and finally,

.491 in the southeastern part of the Caspian basin, via Astrabad or Gurgan, it leads to Khorasan (Khurasan) and Central Asia. West of Tiflis, which is the capital of Georgia and the most important intersection point of Caucasian roads, one road follows the Kura valley upward, using it as a very convenient way across the northern boundary mountains of High Armenia, and the whole Irano-Anatolian plateau to Akhalts'ikhe. From this point one road leads westward, south of the Adjaro-Imeret'ian range, to the estuary of the Chorokh and the city of Bat'umi; one to the north-northwest across that range to K'ut'aisi; and a third one to the south-east going to Akhalk'alak'i. This third road divides at Akhalk'alak'i: one branch keeps generally to a south-southeast direction via Leninakan to Central Armenia; the other goes southwestward to the Chaldyr-göl and Kars--continuing on to Erzurum, Erzindjan (Erzingyan; Erzincan) and still deeper into the territory of Turkey. This latter road divides, north of the Chaldyr-göl, into sub-branches, one of which leads to Ardahan and further northwestward to the lower Chorokh valley on Turkish territory. The road which leaves the Kura valley and crosses the Surami pass, like the railroad, leads first to Shorapani -this is Strabon's Sarapaná, the place where the pass leading into the Kura Valley beings -, then to K'ut'aisi, west of which it divides, near

.491 Samtredia, into a southwestern branch, leading to Bat'umi, and a northwestern one, reaching the Black Sea coast at Ochamchire, while two subsidiary lines lead to the coast at Kulevi, at the Khobi estuary, and from Zugdidi to Anakliya, at the estuary of the Ingur. Beyond Ochamchire this road follows all along the picturesque Black Sea coast via Sukhumi, Gagra, Sochi, and Tuap'se to Novorossiysk.

From Tiflis, two roads lead to Armenia; the older of them branches off the road to Kirovabad and Baku, at the famous little carpet-weaving town of Kazakh on the lower Akstafa river, which it then follows upward into the Anti-Caucasus. At Dilizhan (Delizhan), it divides into one branch going westward to Leninakan, and another going southward to the northwestern tip of the Sevan, from where it continues down the Zanga valley to Erivan and Central Armenia. These are the main roads from Tiflis southward; there exists a minor road using the Mashavera valley as access to the Armenian plateau. The railroad uses a third road, along the Borchala or Debet-Chai valley. The connection of Armenia with Azerbaidjan is made along the old road via Nakhichevan, Shusha, and Yevlakh (described above). There is none along the Araxes valley, through which, however, the railroad connection with Azerbaidjan has been established. The main road into Persian Azerbaidjan leads

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.491 via Nakhichevan and Djulfa southeastward to Tabrīz, Miāne, and then via Zendjān, and Qazvīn to Tehrān.

While the Anti-Caucasus, by its orographical nature, offers fewer obstacles to communication between the Anatolo-Iranian plains and the lands of Trans-Caucasia (and there the roads are older and relatively numerous), the Great Caucasus is an incomparably greater obstacle to direct traffic lines. Roads across the Great Caucasus are the work of most recent times, and it seems that since time immemorial there have been only dangerous, steep, narrow pathways leading across the Caucasus. Perhaps one exception was the Georgian Army road, enlarged by the Russians in the years 1811-14, which nonetheless has to pass the Darial Gorge. This is why migrations of entire tribal groups or peoples across the Caucasus are not possible; why such a great number of linguistically and ethnically distinct groups have survived in the Great Caucasus from pre-historical times; and why the Great Caucasus is a most useful defense line against aggressors from the north, a line which can be protected by relatively small numbers of people. There exists only one relatively open communication line or thoroughfare from Trans-Caucasia to the north: that along the Caspian coast used by the old road from Persian Azerbaidjan and Shirvan via Baku, or simply Apsheron, Kuba,

491 Derbent, and Makhach-Kala, or Temir-Khan Shura (Buynaksk): and even this road can be sealed off successfully at the narrow point where the city of Derbent ("the closing of the [912] doors") is situated. The Great Caucasus Wall began at Derbent. This wall is a counterpart of the limes romanus in Europe or the Great Chinese Wall, and was built in the 6th century by the Byzantine and Sassanian Empires at their joint, and not insignificant, expense, in order to create an unconquerable defense line against the dangerous nomad tribes of the vast northern plains. At Derbent, the eastern extremity of the wall can still be seen submerged in the Caspian waters; it extended as far west as the Darial Gorge. The western half of the Caucasus was evidently considered to be naturally safe. Surprisingly enough, the communication lines between Trans-Caucasia and the north are still very few in number today, and there exist only two railroad lines, along both coasts, and one major road across the Caucasian range -- the so-called Georgian Army Road from Tiflis to Ordzhonikidze (Vladikaukaz, Dzaudjyqau). The other roads across the Caucasus are not of the same quality as the Georgian Army Road, and are unsuitable for modern heavier traffic. [496] Not a single railroad line has been built across the Great Caucasus, even though as early as the 1870s a number of projects for a railroad crossing the Caucasus between Tiflis and Vladikavkaz were in preparation.

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The Georgian Army Road

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Three cities hold key positions at the southern end of the communication lines across the Caucasus: Sukhumi, K'ut'aisi, and Tiflis. Of these, the last-mentioned is the most important, because the Georgian Army road crossing the mountain system from Vladikavkaz through the Darial Gorge ends here. A quarter of a century ago, this route was the only one suited for automobiles and heavier traffic, used by trucks up to three metric tons capacity, and it still seems to be the only road of relatively modern type. Even in the Darial Gorge and other narrow spots, the road was wide enough to permit two cars to pass each other. The general state of the road was good throughout, and traffic was rather lively. The air distance between Tiflis and Vladikavkaz being 150 km, the length of the Georgian Army road is 214 km. (as given by the Guidebook on the Soviet Union edited by Radó p. 796). The maximum elevation is 2388 m. at the pass of the Holy Cross. During the winter, the pass is usually kept clear of snow for traffic. Wooden and stone walls and fences, and in a few instances also tunnel-like wooden galleries, one of them about 500 m. long, protect the

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491 road from avalanches and falling rocks and debris. This road reaches the Kura river
[361] at the city of Mts'khet'a, 21 km. north-northwest of Tiflis. Mts'khet'a is the picturesque ancient capital of Georgia, with the Cathedral of Sveti Ts'khoveli and the Samt'auri monastery. On the spot where the cathedral now stands, there existed, prior to the 5th century, a wooden church said to have been erected in 328 during the time of Tsminda Nino (St. Nina), the Apostle of the Georgians. There were about 1500 inhabitants in Mts'khet'a in 1929. In Tiflis the road joins all the important communication lines of Trans-Caucasia. The Georgian Army road is not only the best but also the shortest connecting line between north and south.

The Oset'ian Army Road

In K'ut'aisi the Oset'ian Army road has its southern end where it joins the west Trans-Caucasian communication system. This road is almost 300 km. long, since it crosses the Caucasus in a general northeast-southwest direction. It starts at one of the small railroad stations west of Ordzhonikidze (Dzaudjykau); in former times this was at the station of Elkhotovo, 35 km. northwest of Beslan, the railroad hub from which the

491 subsidiary line to Ordzhonikidze branches off. At present, the Oset'ian Army road can be reached at the station of Darg-Kokh, 22 km. northwest of Beslan, on the same line; also from Ardon and Alagir, both along the Oset'ian Army road, by means of a new railroad branch connection with the main line at Darg-Kokh. This branch continues on as far as the lead and silver mines of Mizur (Russ Mizur') and Sadon, situated in a lateral valley joining that of the Ardon from the west, 2 km. south of Mizur, at a distance of about 32 km. southwest of Alagir. The distance from Darg-Kokh to K'ut'aisi along the Oset'ian Army road is 280 km. according to the source cited above (p. 489 f.)

The road follows the beautiful Ardon valley through the Kassara Gorge to the village of Zaromag (or Zaramag), where it turns to the southwest following the Mamyson-don upstream, and finally climbs up the Mamyson Pass (2829 m.; 9282 ft.). South of the Adai-Khokh massif, on the western side of the pass, it descends in serpentine fashion to the Khamkhakhi valley, and soon to that of the upper Rioni, which it follows until K'ut'aisi.

According to more recent data, only the sections of the Oset'ian Army road between Alagir and Ardon (20 km.), and between Oni (the center of the country of Racha on the

191 upper Rioni) and K'ut'aisi, at a distance of 119 km., seem to be first-class roads, i.e., of the quality of the Georgian Army road. The same holds true for the road connecting Alagir with Ordzhonikidze (40 km.).

The section from Alagir to Zaramag seems to have been widened and improved, but the greatest part of the alpine section still seems to be in the same condition in [413] which I found it in 1929. At that time, above Alagir I saw nothing but the heavy horse- or mule-drawn two-wheeled carts of the Caucasian araba type, or the light, horse-drawn four-wheeled passenger vehicles called lineyka ("ruler") in Russian, because of their long, narrow shape. I travelled up to the village ("aul") of Lisri near the Mamyson Pass by lineyka or on foot, and on the way back to Zaramag by a one-horse araba, which I drove myself, followed at a distance by the Oset'ian from whom I had hired it, who was driving a similar conveyance. This alpine part of the road was narrow, so that very often two arabas could not pass each other - particularly disagreeable at turns and sharp curves which could not be seen in their entirety. The road was absolutely unprotected, not having any kind of rails or curbstones; in many places, usually the danger spots, the road was in rather bad

•491 condition, with many bumps and holes. This latter fact showed that the sub-structure of the Oset'ian Army road was rather weak, and not at all suited for any kind of motor traffic. But on the whole, it would not be too difficult to overhaul and modernize the road (perhaps with the exception of certain more difficult spots on the western descent from the Mamyson Pass), since the Oset'ian Army road is well-planned and does not exhibit excessively steep acclivity. At that time I occasionally encountered single mountaineers travelling on arabas or on horseback, as well as entire araba caravans going in both directions, but the traffic was by no means as lively as on the Georgian Army road.

The Sukhumi Army Road

The Sukhumi Army road, as its name implies, ends in Sukhumi. Like the Oset'ian Army road it crosses the high mountains in a generally northeast-southwest direction, but the angle it must make because of the Klukhor Pass is sharper than that of the Oset'ian Army road, which fact adds to its length. From its northern end at Nevinnomysskaia (long. 41°55' E. and lat 44° 37' N.) on the main railroad line, Rostov-Baku, to its termination point at Sukhumi, the road

491 measures 337 km. (according to the above-cited source, page 493). The road maintains a generally southern direction along the Kuban river into the mountains, and, during the summer months from May through September, can handle motor traffic as far as Teberda (156 km.) via Cherkessk. From Teberda on, cart or araba traffic is possible, during summer months, up to the barracks (elevation 1923 m., 6307 ft.) at the northwestern descent of the Klukhor Pass, itself in the upper Ganahkhir valley. From there across the main Caucasian range, only pedestrian traffic, including riding animals, is possible as far as the Klych barracks, 90 km. distant from Sukhumi, situated at the junction of the Klukhor-Klych and Gvandra valleys. However, in view of the absence of villages or major settlements in that region, carts or arabas can only be had at the Russian village of Adzhary, where the road also becomes better, or at the larger village of Chkhalty. As far down as Georgievskoye, about 40 km. from Sukhumi, the road is second-class, and joins the Black Sea coast highway at a distance of only 15 km. southeast of Sukhumi. The Klukhor Pass is 2816 m. (9240 ft.) above sea-level, and is free of snow for only two and a half months of the year, from early July to the end of September. (For details on its topography, I refer to the

491 excellent map on the scale of 1:150,000 of the Klukhor in the above-quoted work by Freshfield: Explorations of the Caucasus, volume 2, pages 190-1).

The "Akhty Army Road"

487 The roads leading from Trans-Caucasia to Dagestan do not differ from the Sukhumi Army road; they are all paths. One of them has been given the title of an Army Road: the Akhty Army Road (Voyenno-Akhtinskaia Doroga), which connects Nukha in northwestern Azerbaidjan with the former fortress of Akhty, on the upper Samur river in the area of the Rutuls and Tsakhurs. The straight distance between Nukha and Akhty is only 55 km, and the Akhty Army Road uses the Salavat Pass, elevation 2896 m, due north of Nukha, which it reaches via the Shin Gorge. It descends from the pass in a northeasterly direction, and leads to the Tsakhur mountain village of Borch or Burzh, from where it goes in a generally easterly direction, following the Akhty-Chai valley, and reaches the confluence of the Akhty-Chai and the Samur. From Akhty down the Samur valley, the road is marked on the map of 1916 as a first-class communication line which ultimately leads to the Caspian coast highway, to Derbent or Kuba, etc. But the entire pathway between the highway Nukha-Zakatali, — from which it

505 handled partially by Odessa and other non-Caucasian Black Sea ports, the importance of Novorossiysk, Poti, and Batumi was still considerable. On the Caspian Sea Makhachkala is the preeminence export harbor. The importance of the Sea of Azov in maritime shipping is smaller.

491 Primary roads: Importance limited. Certain areas, however, are better served. The highways are relatively good in North Azerbaijan along the slopes of the Greater Caucasus. They are also good in the Tbilisi-Yerevan areas. Of the military roads, the Abkhazian and Ossetian Military Roads are famous, but without practical value. The Georgian Military Road, connecting Tbilisi with Dzaudzhikau is somewhat better. The coastal highway is relatively good in Groznyy Oblast, and in Dagestan along the northern slopes of the Greater Caucasus. Krasnodar Kray, along the slopes, has better highways too. Stepnoy (in the Stavropol' Kray) is reported to be connected with Astrakhan' and Stalingrad by a more recent highway.

508 Airfields, landing grounds: The Caucasian aviation system is well developed. The number of civil and military airfields and landing grounds is around 50. Baku, Kirovabad, Yerevan, Tbilisi, Astrakhan', Makhachkala, Mineral'nyye Vody, and Rostov are the aviation centers. They usually have several airfields each, sometimes as many as six.

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